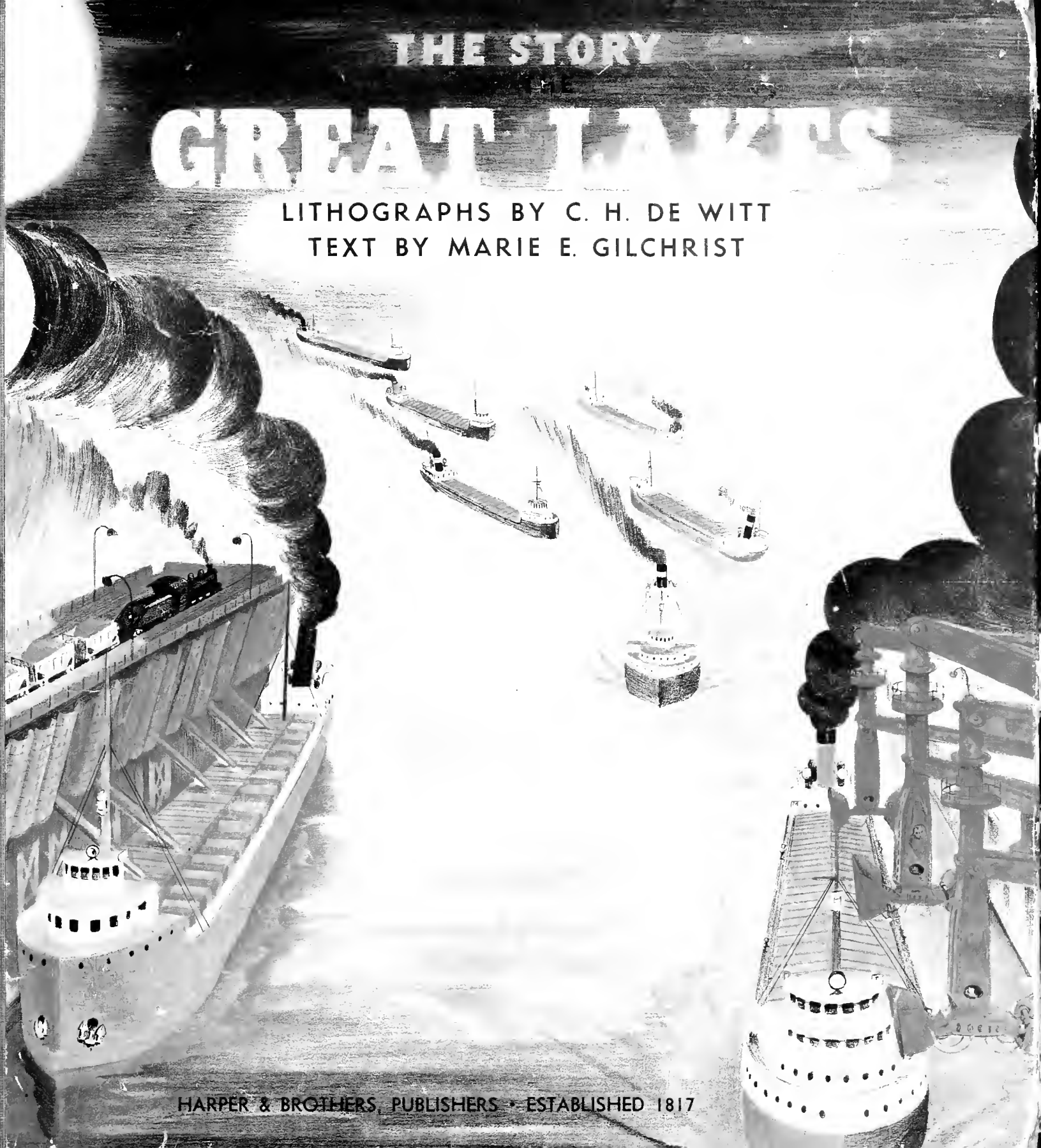
THE STORY OF THE GREAT LAKES

LITHOGRAPHS BY C. H. DE WITT

TEXT BY MARIE E. GILCHRIST



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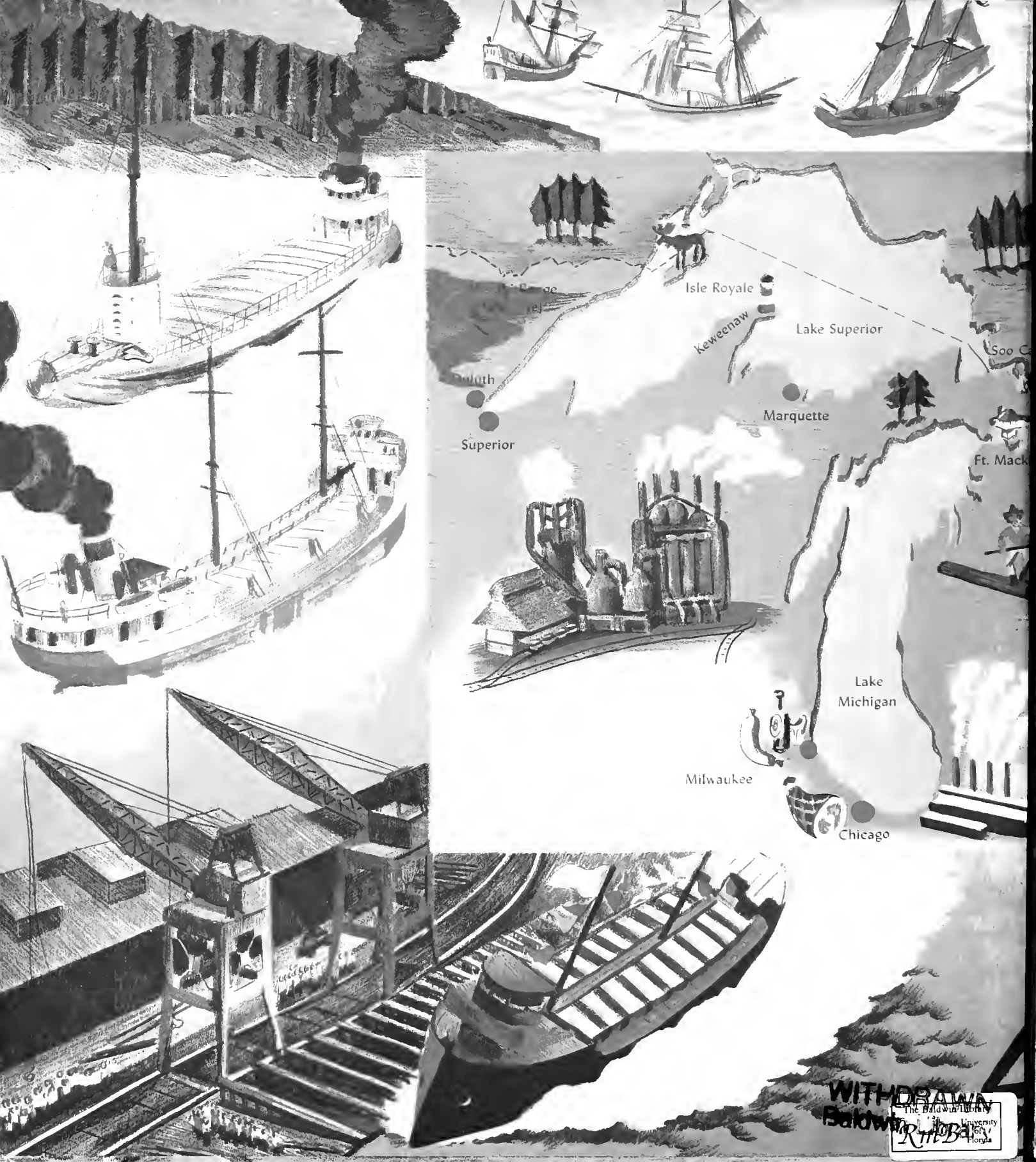


WITHDRAWN
Baldwin
The Baldwin Library
University of Florida

French Fur Traders
Ottawa River
French River Route
Georgian Bay
Lake Huron
Toronto
Lake Ontario
Niagara Falls
Port Huron
Lake
St. Clair
Lake Erie
Erie
Detroit
Cleveland

To Barbara
From Paul.
Christmas 1943

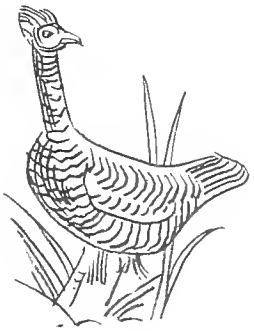
The Story of the Great Lakes

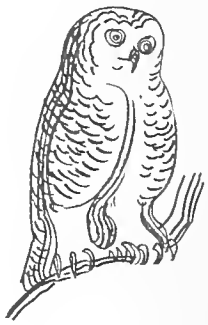
LITHOGRAPHS BY C.H. DEWITT

TEXT BY

MARIE E. GILCHRIST

HARPER & BROTHERS • PUBLISHERS
NEW YORK LONDON





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First Edition
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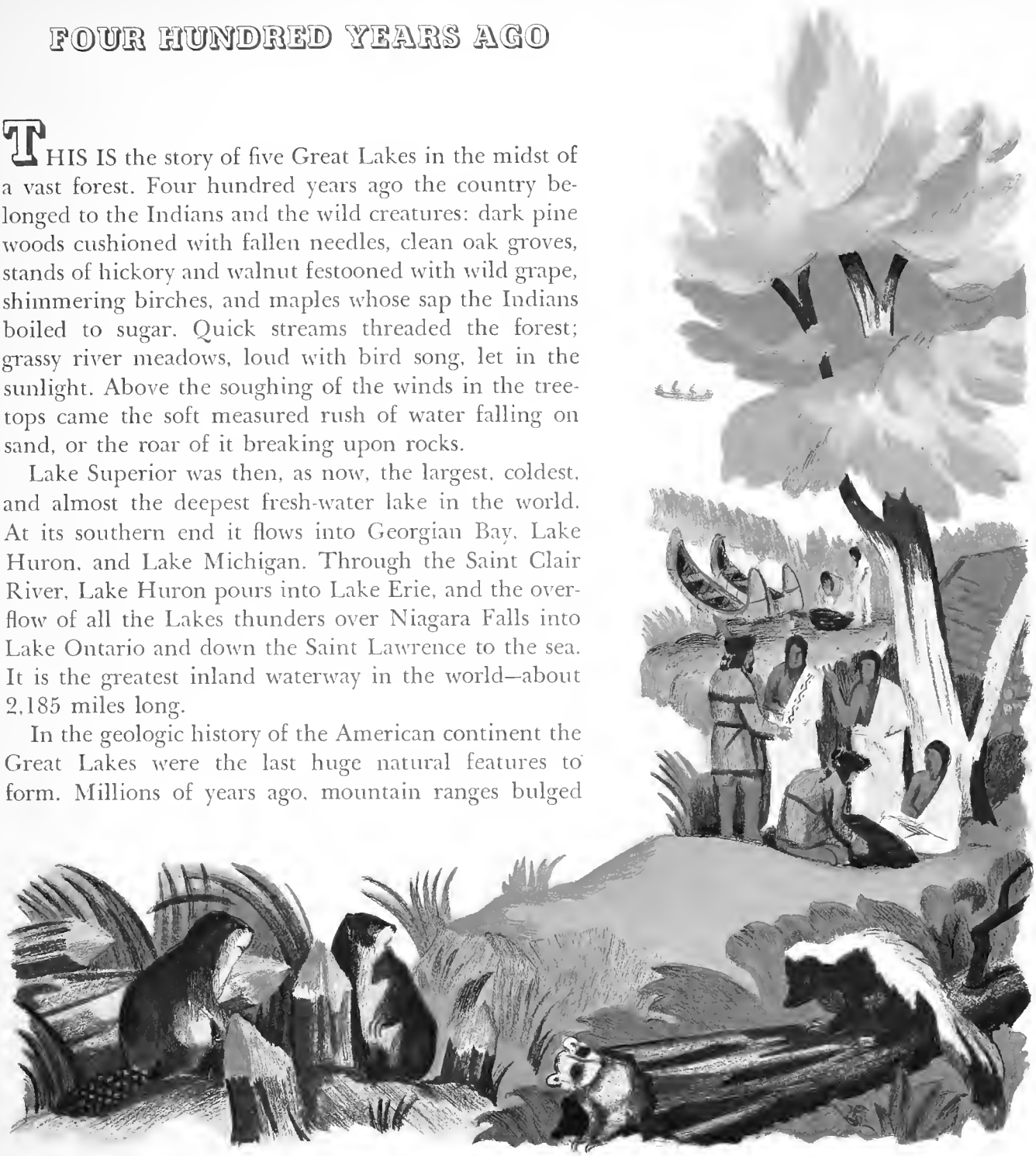
FOUR HUNDRED YEARS AGO

THIS IS the story of five Great Lakes in the midst of a vast forest. Four hundred years ago the country belonged to the Indians and the wild creatures: dark pine woods cushioned with fallen needles, clean oak groves, stands of hickory and walnut festooned with wild grape, shimmering birches, and maples whose sap the Indians boiled to sugar. Quick streams threaded the forest; grassy river meadows, loud with bird song, let in the sunlight. Above the soughing of the winds in the treetops came the soft measured rush of water falling on sand, or the roar of it breaking upon rocks.

Lake Superior was then, as now, the largest, coldest, and almost the deepest fresh-water lake in the world. At its southern end it flows into Georgian Bay, Lake Huron, and Lake Michigan. Through the Saint Clair River, Lake Huron pours into Lake Erie, and the overflow of all the Lakes thunders over Niagara Falls into Lake Ontario and down the Saint Lawrence to the sea. It is the greatest inland waterway in the world—about 2,185 miles long.

In the geologic history of the American continent the Great Lakes were the last huge natural features to form. Millions of years ago, mountain ranges bulged



up in what is now Minnesota and Canada, and in the roots of the mountains were deposited iron and copper. Then the whole area was submerged beneath the sea. Sandstone and limestone were spread over it. As the land was raised up, this top layer of stone wore partly away. Next came vast glaciers that scraped bare the rock roots of old mountains, washing the iron loose, gouging out the softer rock. Their giant fingermarks are the 10,000 fresh-water lakes in Minnesota, Michigan's 6,000, Wisconsin's 2,000, and innumerable swamps filled with cedar, tamarack, or cranberry. The iron ranges of Michigan, Wisconsin, and Minnesota are the roots of those older mountains worn down and covered by glacial drift.

The retreating ice left one lake larger than the combined Great Lakes. Plants and trees sprang up; their decay formed the coal beds farther south and to the east. Land in the northeast tilted up, raising the head of Lake Ontario above sea level, and the huge lake shrank into the smaller basins of Superior, Michigan, and Huron. The land is now gradually tilting to the northwest. Some day the Great Lakes will drain into the Mississippi, making Niagara Falls a mere geologic memory.

THE WHITE MEN COME

LESS THAN fifty years after Columbus discovered America, Frenchmen, also seeking a route to China, began exploring the Saint Lawrence River. Indians told them there were great seas beyond. So there were, and regions richer than all the Indies, but no ancient cities with paved streets, no courtiers and scholars. On the lonely shores of Lake Michigan young Jean Nicolet donned a gorgeous Chinese silk robe to approach the Great Khan, but only Winnebago Indians greeted him. French missionaries were the first whites to come and live among the hostile savages. In the harsh northern wilderness Champlain built the fort of Quebec as a way-station between France and China. The French did not know it, but they themselves were bringing civilization to a country whose men were few and savage.

LA SALLE BUILT THE FIRST SAILING VESSEL ON THE LAKES—THE *GRIFFIN*

Champlain, Marquette, Joliet, La Salle, Cadillac, Duluth: daily you hear spoken the names of some of these earliest explorers of the Great Lakes country. On the river bank above Niagara Falls, La Salle built the first sailing vessel on the Lakes—the *Griffin*. One summer day in 1678, with 34 men aboard and two brass cannon, but no charts to guide him, he started the long trip up the Lakes—shallow, muddy Lake Erie, the Detroit River, grassy little Lake Saint Clair, blue Lake Huron, and bluer Lake Michigan.

In Green Bay he loaded the *Griffin* with big bundles of furs bought from the Indians, and sent her back to Niagara in September. She was never heard of again.

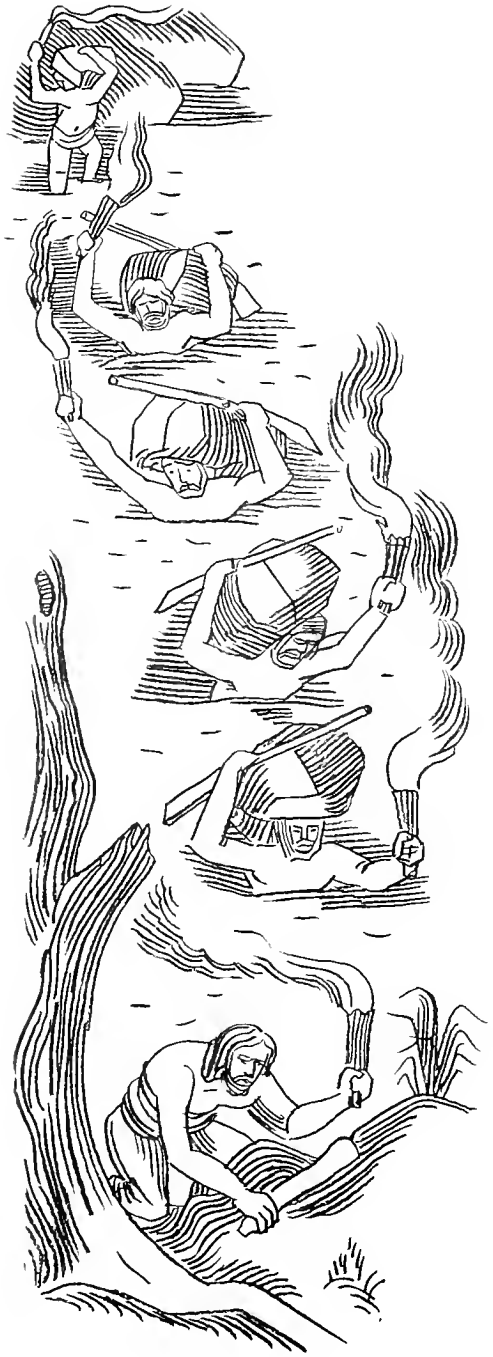
Many Frenchmen settled in New France, as Canada was then called, to trade with the Indians for furs. They explored the Mississippi and strung forts and missions and trading posts—sixty of them—all the way from Montreal to New Orleans. Without the yellow-birch canoes of the Algonquin Indians they could hardly have done this. These boats could be made in the woods and were light enough to be carried on men's shoulders.

Every spring long brigades of canoes started up the Ottawa River, the boatmen singing to their paddle-strokes. Many traders ventured north of Lake Superior to Rainy Lake and the Red River country. In the fall they returned, having traded their stock of blankets and knives for rich pelts of lynx and bear, muskrat, mink, and marten, and especially beaver skins to make hats for lords and ladies.

But the English on the Atlantic Coast resented the encroaching French, and the two nations were soon at war, each side aided by Indian tribes who had their own grudges to settle. When England finally won, she found another war brewing—the American Revolution. Around the Lakes she was well entrenched in French forts she had taken: Detroit, Sault Sainte Marie, and Mackinac. The newer fort that was built then on Mackinac Island to guard the Straits still stands. England also had two warships on Lake Erie—the schooners *Huron* and *Michigan*.

In such a vast wilderness war consisted of long treks, small skirmishes, starving sieges. One scouting party of two Revolu-

THE YELLOW-BIRCH CANOES OF THE ALGONQUINS COULD BE CARRIED ON MEN'S SHOULDERS



tionary Army officers and four men, returning from Lake Erie to Fort Pitt, lost their supplies and were overtaken by winter. When the six tired, hungry men reached the Conequenessing River in southern Ohio they found it frozen over with ice too thin to bear their weight. Undaunted, they built a big fire, stripped off their clothes and sent one man ahead with a heavy club to break the ice. Each of the others, taking clothing and musket in one hand and a blazing firebrand in the other, plunged into the ice-filled river. Safe on the southern bank, they put their torches together, dried themselves by the new fire, and put on their clothes; then they resumed their march.

When a peace treaty was signed in Paris, Benjamin Franklin saw to it that the Lake Superior copper regions lay within the American boundary. The Great Lakes (with the exception of Lake Michigan, which lies entirely within the United States boundary) were divided between the United States and Great Britain. Since that time each country has had a borderland on the Lakes and free passage on all the Lakes for her ships.

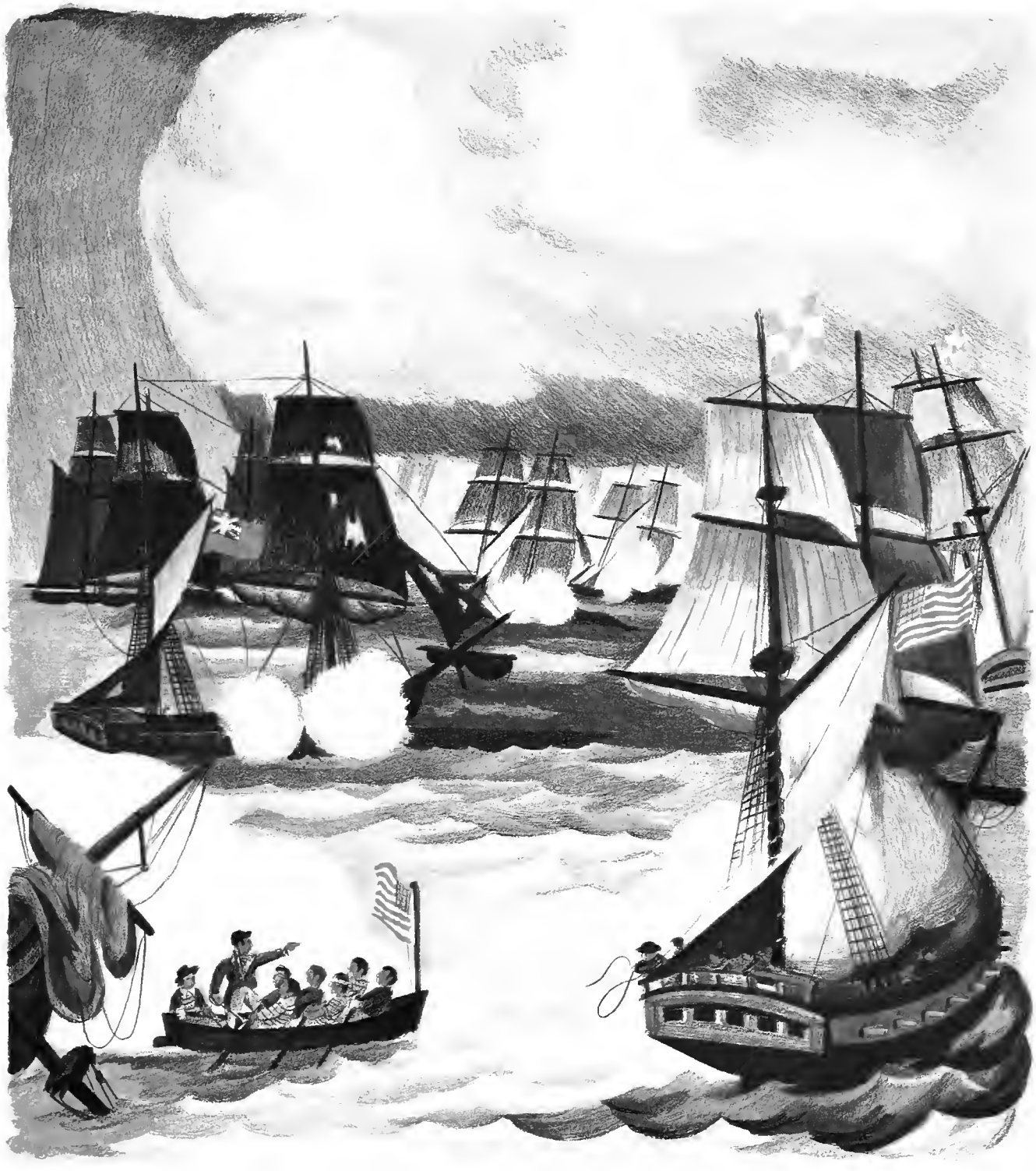
The American people lost no time in building vessels along the south shores of Lake Ontario and Lake Erie to carry settlers and supplies on their great new water highway to the West.

WAR ON THE LAKES

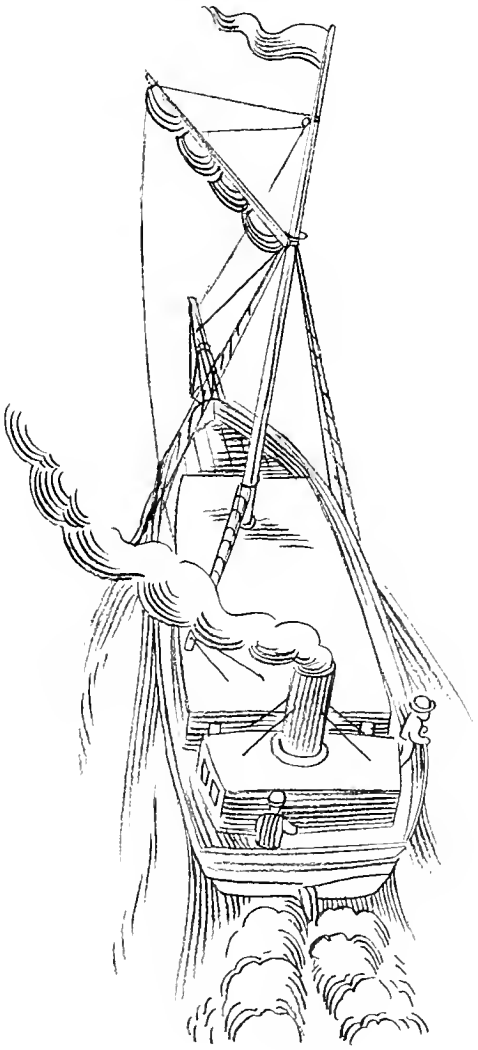
THEN, IN 1812, commerce was halted by a new war with England. Though this was a dispute over the command of the seas, battles blazed on Lake Ontario's shores and at Mackinac, Fort Dearborn (Chicago), and Detroit.

A small British fleet held Lake Erie. Oliver Hazard Perry, a young American, built a fleet of five vessels at Erie out of green timber. Iron, cordage, and canvas were hauled through the snow-filled woods from Philadelphia. Outside the sandbar at the harbor entrance the British ships waited. But on a day when the enemy's commodore was dining in Canada, Perry pushed across the bar, and later pursued the British to Put-in-Bay.

Now came the Battle of Lake Erie.



PERRY HAD HIMSELF ROWED THROUGH A RAIN OF BULLETS TO THE *NIAGARA*



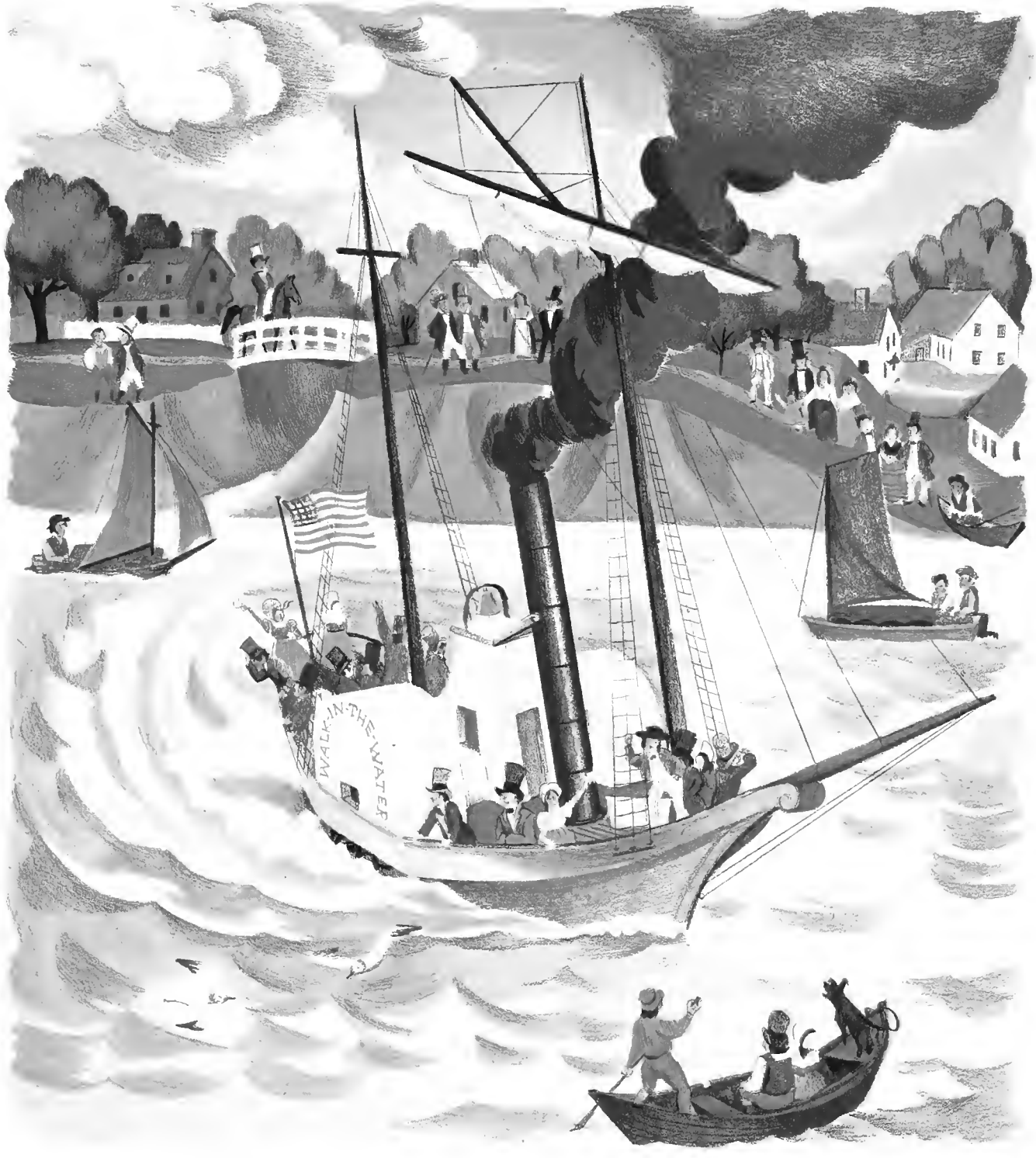
Perry had nine vessels, the British six. When Perry's flagship, the *Saint Lawrence,* was shot to pieces, he leaped into a small boat in clear sight of the British and in a rain of bullets had himself rowed to the *Niagara.* The British flagship *Detroit* veered about to give the *Niagara* a broadside and ran into a ship of her own fleet, while Perry, breaking the enemy's line, poured shot from all his guns into both vessels. The *Detroit* and two other disabled British ships pulled down their colors; the others fled, but they were pursued and captured.

Perry's victory was complete. His dispatch to his general said: "We have met the enemy and they are ours: two ships, two brigs, one schooner, and one sloop."

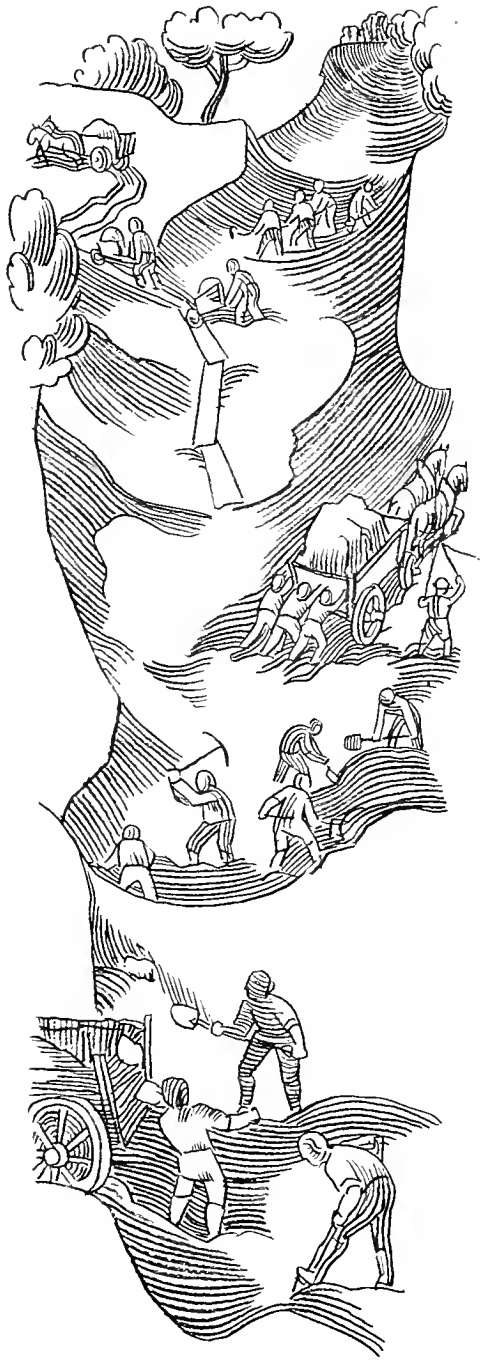
STEAM COMES TO THE LAKES

BEFORE THE war, Robert Fulton's steamboat, the *Clermont,* had puffed and paddled her way up the Hudson to Albany and back. Soon after the war, Canada launched the first steamboat on the Great Lakes, the *Frontenac,* into Lake Ontario; six months later the steamboat *Ontario* entered the lake from the American shore. Both boats made regular trips down the Saint Lawrence to Ogdensburg. On Lake Erie, the steamer *Walk-in-the-Water* was built above Niagara Falls to run to Detroit; when she was wrecked, three years later, more steamers replaced her. These little vessels went from six to eight miles an hour and burned wood, of which there was plenty growing green and tall on the shores. They used sails when they had a breeze.

The War of 1812 had interfered with a New York State scheme for building a canal from Albany to Buffalo. Now the Governor, De Witt Clinton, again argued for the Erie Canal, and on July 4, 1817, while cannon boomed, the first spadeful of dirt was lifted. After eight years of "pick-and-shovel" digging, "Clinton's Big Ditch," 365 miles long, united Lake Erie and the Hudson. Two kegs of Lake Erie's water,



THE STEAMER *WALK-IN-THE-WATER* RAN FROM NIAGARA FALLS TO DETROIT



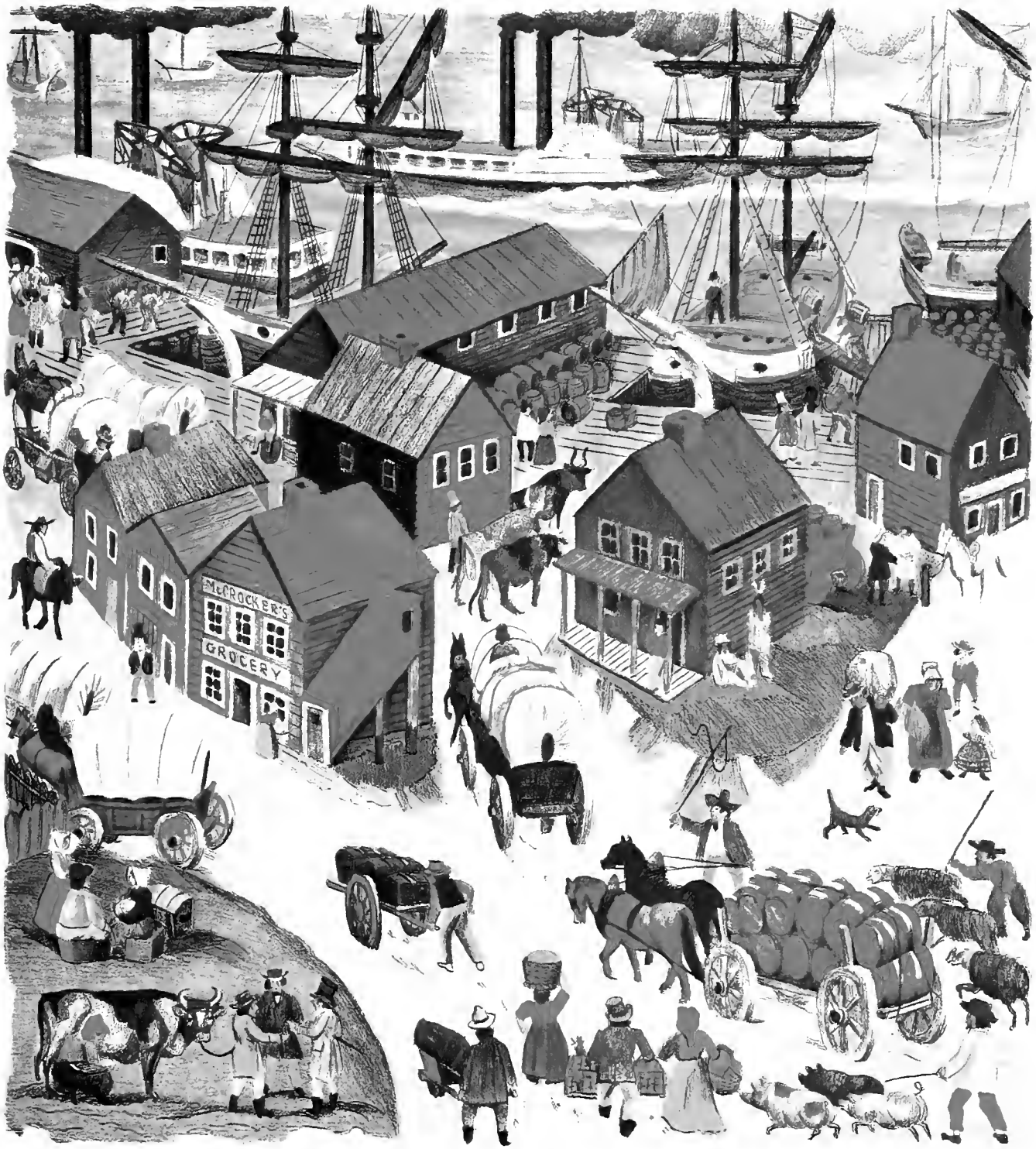
brought from Buffalo by the first canal boat, were poured into the Atlantic to celebrate the joining of fresh and salt water.

At last travel between New York City and the West was direct and easy. Instead of a hundred dollars it now cost ten to send a ton of merchandise to Buffalo, and men on the frontier farther west could buy plows and axes cheaply. New York City, less important then than Philadelphia, could now draw from the West the foodstuffs and raw materials without which no city can become great. And families arriving from Europe, or New Englanders quitting their stony farms, could travel comfortably to the Great Lakes and the prairies beyond.

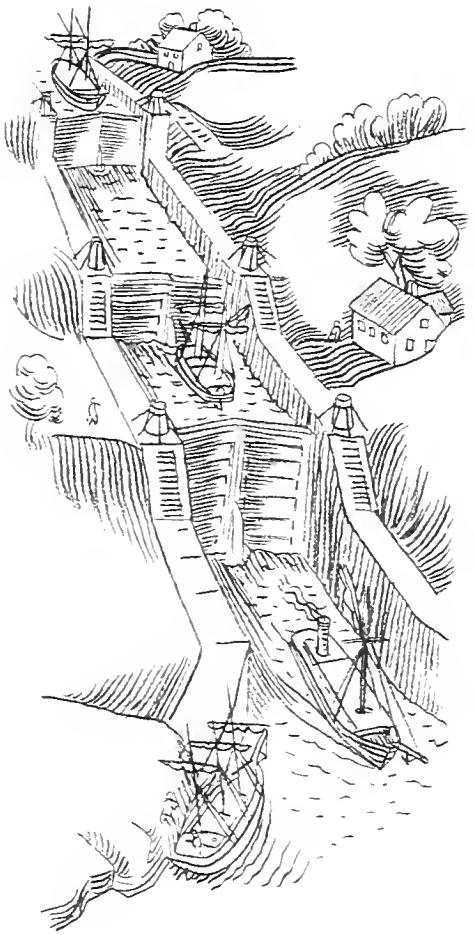
A few years later Canada built the Welland Canal around Niagara Falls to let ships pass between Lake Erie and Lake Ontario. The slope between the two lakes was so steep that forty locks were needed to lower and raise the vessels. A lock is made of two gates in a canal, placed far enough apart to make a box of water that can hold a ship. After a ship has entered a lock, the gate behind her is closed and the water in the lock basin is raised or lowered to the height of the next water level. Then the gate in front is opened, and the ship rides through. Today there are seven locks and one guard lock in the Welland Canal.

The Erie Canal soon changed Buffalo from a town to a bustling city. Five smaller canals floated people and their wares to and from Lake Erie. Cleveland's shipyards hummed with building the year around. Detroit, always the big crossroads town of the Lakes, was now the chief port of embarkation for the western frontier. Sailing vessels loaded the first prairie harvests of wheat at Chicago and Milwaukee wharves and brought them down the Lakes to the Erie Canal. On the return trip they carried people and cattle, wagons and plows. Some settlers brought horses and household gear. Others walked off into the prairie with no more than a gun and a kettle, leading their smallest children by the hand. It seemed as if everyone wanted to make his fortune in the West.

Then two inventions gave new and lasting power to the Lakes fleet: John Ericsson's screw propeller, and the iron gunboat *Michigan*. When the Swedish inventor failed to interest either the English or the American navy in his propeller—a



THE ERIE CANAL CHANGED BUFFALO FROM A TOWN TO A BUSTLING CITY



paddle blade that would drive a ship from the rear—he permitted a Lakes captain to build a boat using his plan. In November 1841, the little sloop *Vandalia* slid into the waters of Lake Ontario, and the next spring she churned her way through the Welland Canal to Buffalo. Her propeller, so like a fish's tail, had more power than two side-paddles and, better still, left much more room in the ship's hold for cargo. In two years there were seven more screw-propelled ships puffing up and down the Lakes, and in seven years there were fifty. The giant freighters on the Lakes today are truly the grandchildren of the little *Vandalia*.

In 1844, the United States Government built the iron gunboat *Michigan* at Erie, where Perry had built his fleet, hauling iron plates and ribs, a keel, and an engine from Pittsburgh. Nobody thereabouts thought that an iron boat would float, and when she was ready to launch she stuck on the ways, and workmen and sightseers went home disgusted. That December night, nobody knows how, the *Michigan* slid down the ways all of her own accord. People got up the next morning and rubbed their eyes in amazement. There she was in the water—floating! Now most ships are made of steel, a special kind of iron.

THE EPIC OF THE SOO CANAL

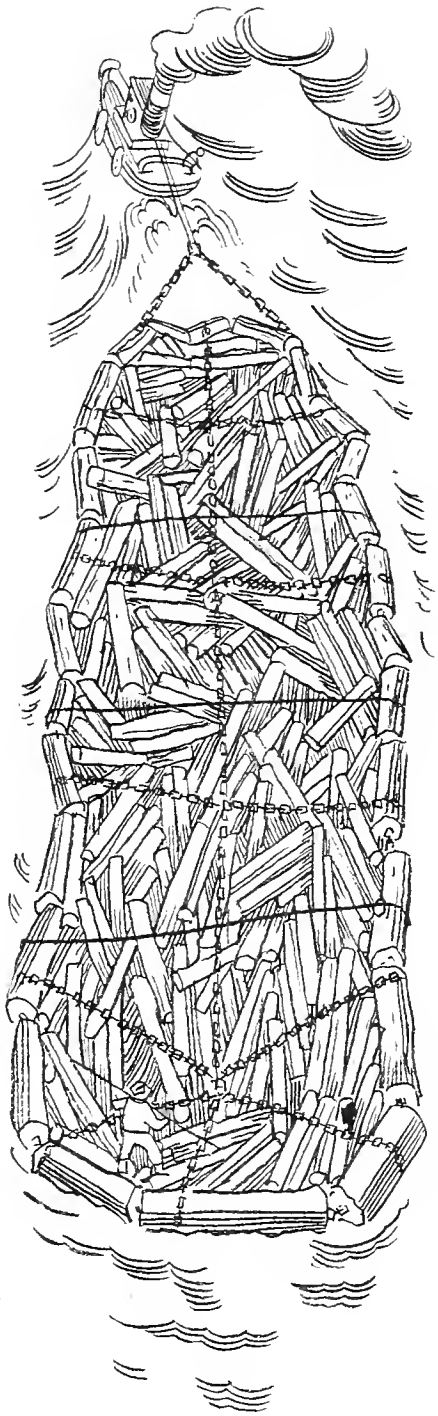
LAKE SUPERIOR, all this while, was shut off from the hustle and bustle of shipping between Buffalo and Chicago by the little strip of land through which plunged the Falls of Saint Mary's—the Sault Sainte Marie. From earliest times it had been a gathering point for the Indians who speared their winter's supply of whitefish there. Every canoeload of furs bound for Montreal was carried across this portage. Here in 1671 the French claimed the country for their king. Here were a French mission, the warehouses of the Northwest Fur Company, and, later, John Jacob Astor's American Fur Company.

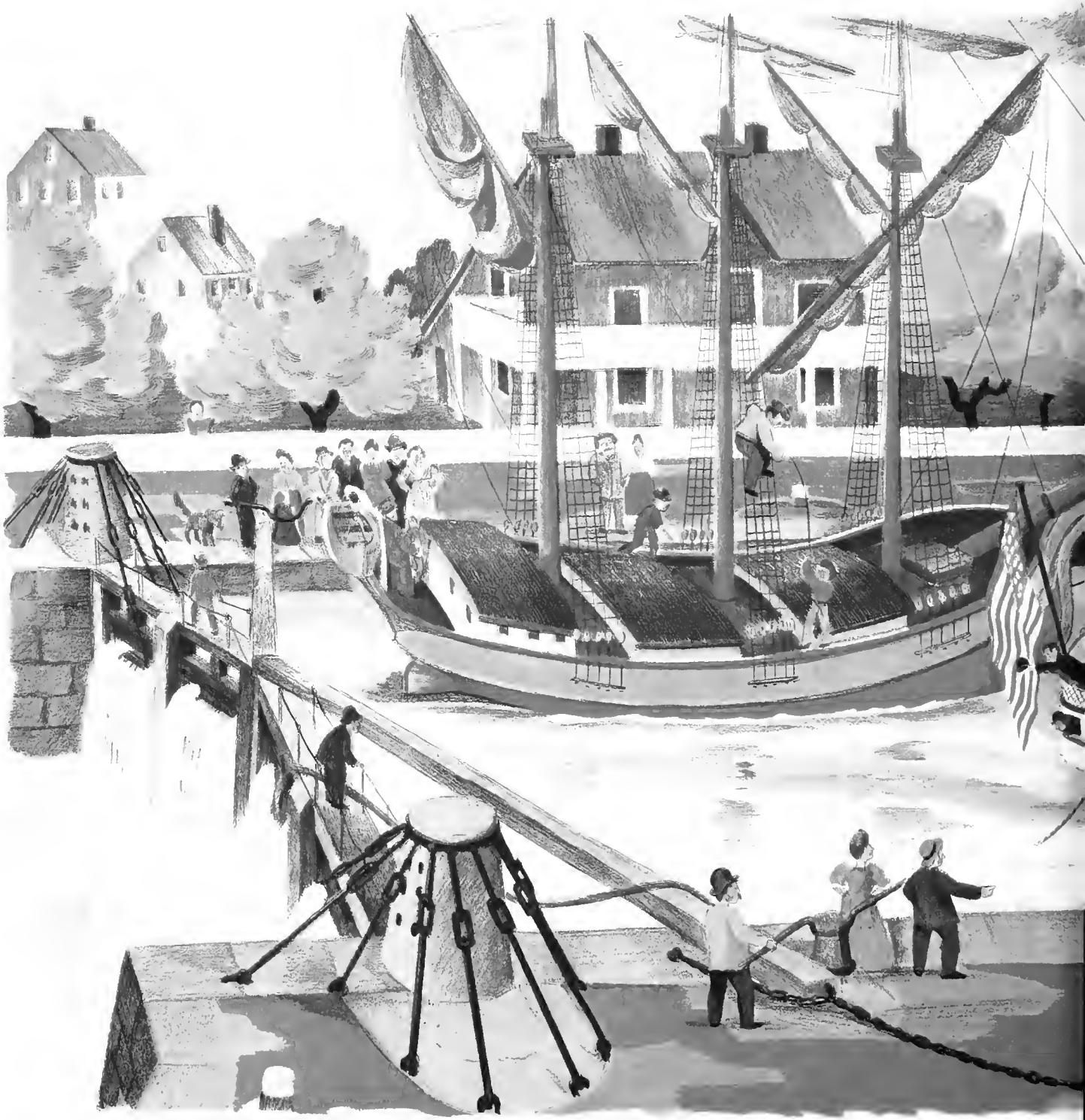
The few boats navigating Lake Superior were either built

at the Sault or hauled across the portage on rollers. But deep in the North Woods men were already mining for copper and iron, and it was a giant's task to fetch tools and machinery across the portage to the mines or to send metals and ores down the Lakes. Something had to be done.

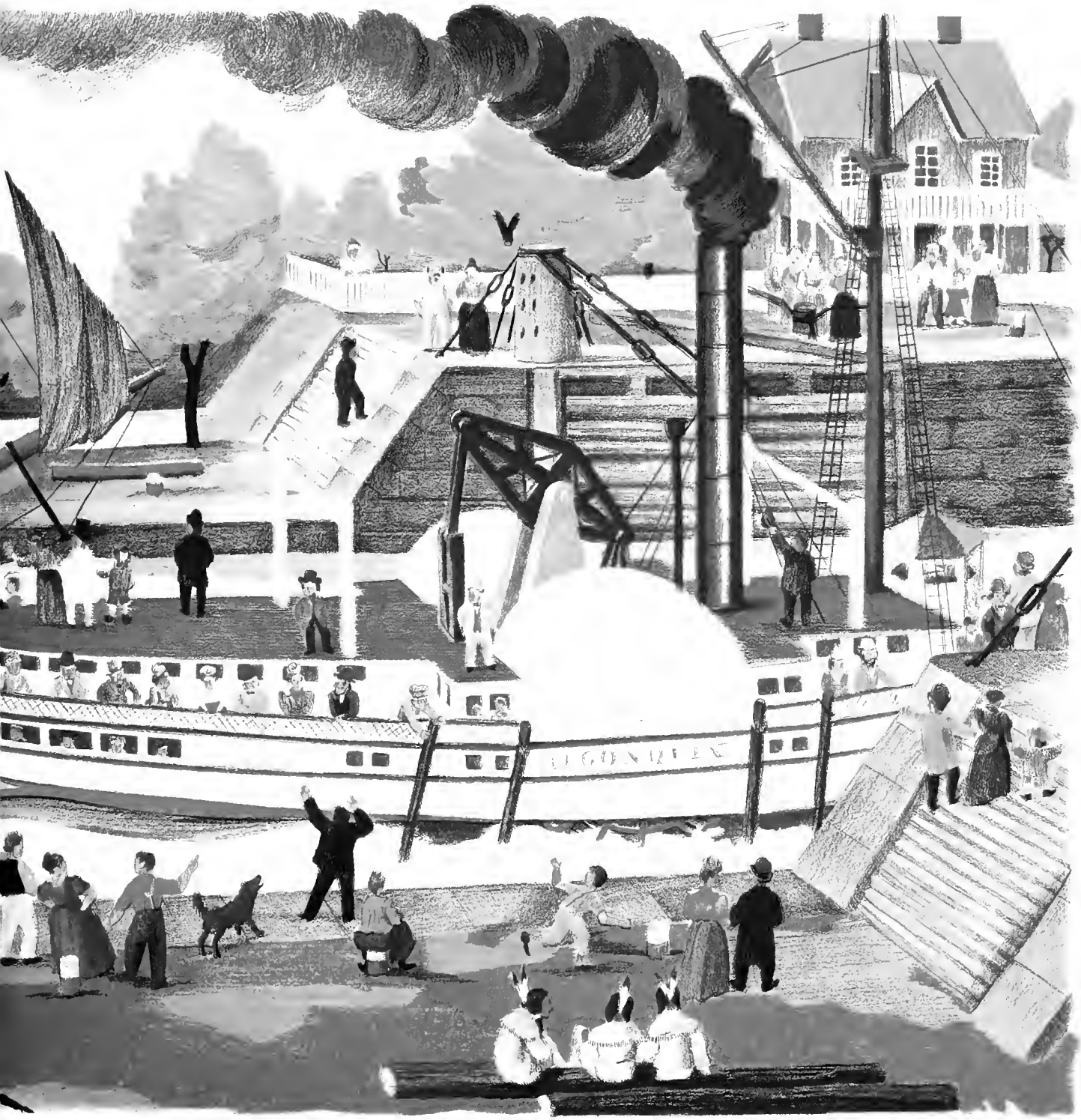
At this time Charles Harvey, a young man from Vermont, had an attack of typhoid fever, and his employers—the Fairbanks Scale Company—sent him up to "the Soo," as everyone calls it, to regain his strength in the fresh northern air. He might take a look at the mines, too, they told him. For years, men from Michigan had been urging the Government to build a canal from Lake Superior into Lake Huron. Now the Government agreed to give 750,000 acres of uncleared land—but no money—to anyone who would build such a canal. Since the land was valued at only twenty-five cents an acre, nobody wanted the job. But Harvey saw the mines; he watched cars drawn by mules pass day-long back and forth along the single track which spanned the portage, hauling supplies to Lake Superior, toting back kegs of fish and bales of furs or a few bars of iron and copper. He told his employers that land with copper and iron under it was worth a great deal, and they formed a company to build the canal. Charles Harvey, 24 years old, was to build it.

As soon as the ice was out of the rivers and the lakes the next spring, Harvey set out from Detroit on the steamer *Illinois*. Her decks were crowded with horses and men, her hold stowed full of lumber, tools, and supplies. Three days after they reached the Soo he had the men housed in shanties and starting to dig. They had just two years to build that canal, and it would be a mile long, with two stone basins and their lock gates to handle the 19-foot drop between the Lakes. In the summer it took six weeks to receive an answer to a letter sent to New York; in the winter no mail came through. Powder for blasting was brought from the Atlantic coast, limestone to face the locks from Lake Erie. The men were always deserting to work on the railroads then being built. Harvey had to send agents to New York to hire immigrants still on shipboard and pay their way to the Soo. Starting with a crew of 400 men, he finally had 2,000 working on the canal.

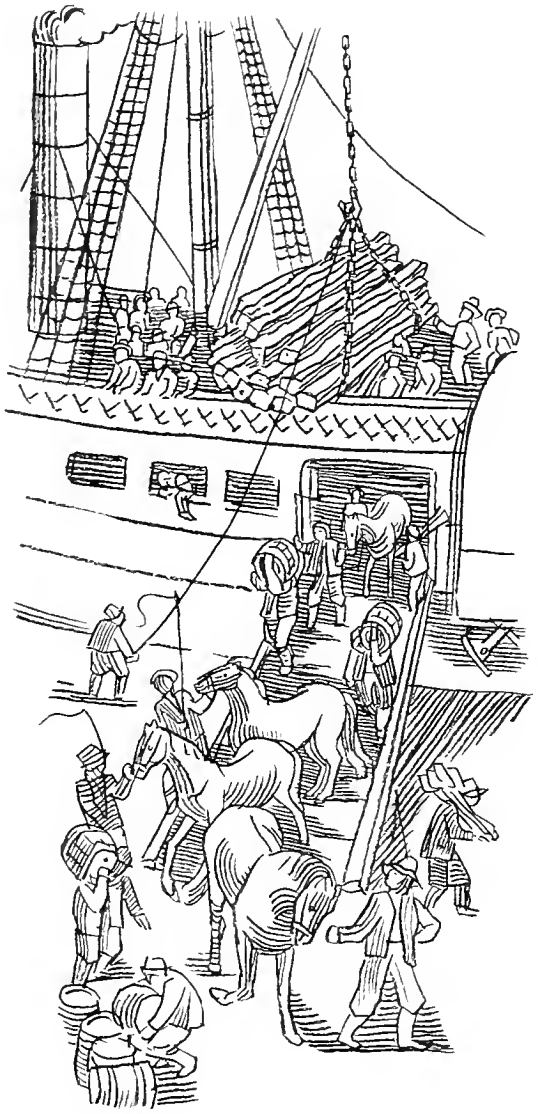




THE SOO CANAL UNLOCKED THE



WEALTH OF THE GREAT NORTHWEST



Winter froze them in as if they were at the Pole, but late the next fall they had dug their way through to Lake Superior. Then they found that the Government chart was wrong; the reef there was not sand but rock! Harvey was desperate. He had promised to have the canal ready by the following May. He improvised a 3-ton steam punch, and kept three scows pounding, day and night (except Sundays), at the reef. Spring came, and Harvey opened the gates at the upper end, letting in the waters of Lake Superior. Had his punch done the work? He sat on the pier while twice the dredge brought up an empty scoop. The third time the men put on every ounce of power and the scoop came up filled with broken stone. His homemade punch had pounded the reef to pieces.

Nobody had heard from Harvey all winter, and an anxious group of men from his company set out from Detroit on the first steamer to see how he was getting on. Proudly he showed them a fine stone-walled canal, a hundred feet wide, and two lock basins with gates turned by hand windlasses, each one able to lift a ship about 9 feet. At last the doorstep of Lake Superior could be mounted by any ship on the Lakes, and the great wealth still locked in the earth in the Far North could flow down to the crowded towns and cities.

In those days, everybody in the United States was thinking of the apparently boundless opportunity of the West, and of one thing more—slavery. Some slaveowners were kind, some were cruel; but many people believed that for one man to be able to buy and own another man, woman, or child was inhuman.

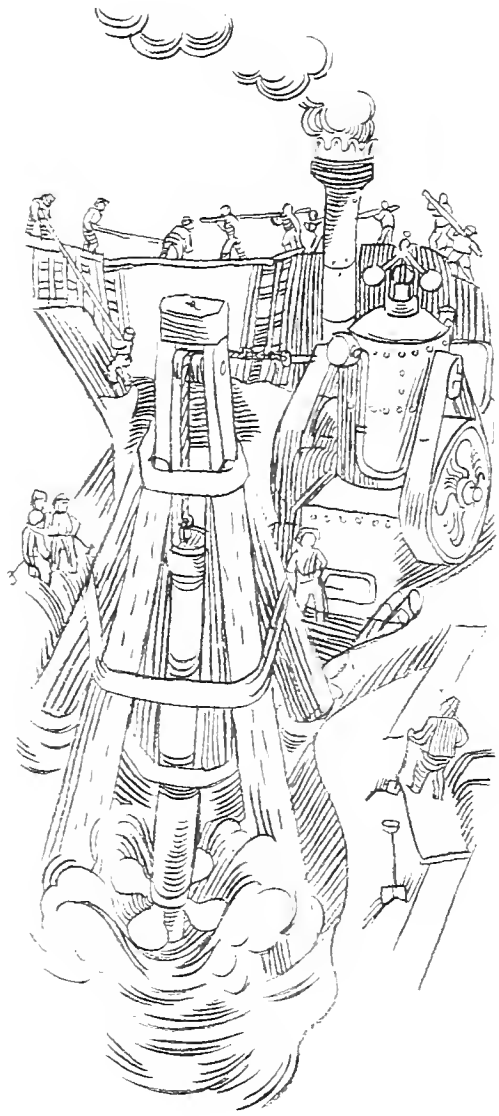
"There shall be no slaveholding in the new West," said the North. "We shall take the West quickly with our slaves to help," said the South. And North and South went to war: 23 states and 22,000,000 men against 11 states and 9,000,000 men. Around the Lakes men left the docks, the farms, mines, lumber camps, and decks of ships, to fight for the right as they saw it. Only old men, young boys, and women were left to plant and harvest the wide western grainfields which helped to feed the factory workers in the East, the fighting men, and their families.

Until the war, wood was the material most used to keep people comfortable and busy. Most of their tools were wooden,

with a piece of iron where great hardness or a cutting edge was needed. But guns and cannon, bullets and bayonets, must be made of iron and steel. Swiftly the war used up what hard metal there was and shouted for more.

On the Marquette Range, eight miles inland from Lake Superior's south shore, men had lost fortunes trying to forge iron right where they mined the ore. They were too far away from everything. Now, because of the Soo Canal, raw ore could pass in shiploads down the lower Lakes to Cleveland, or beyond by canal and rail to Pittsburgh—both of them ironmaking cities. With coal from Ohio and Pennsylvania it was easy to smelt the ore into iron. Limestone from the shores of Lake Erie and Lake Huron helped turn the iron into steel. And that is how it is done around the Lakes today at Cleveland, Buffalo, Chicago, Gary, and Wyandotte.

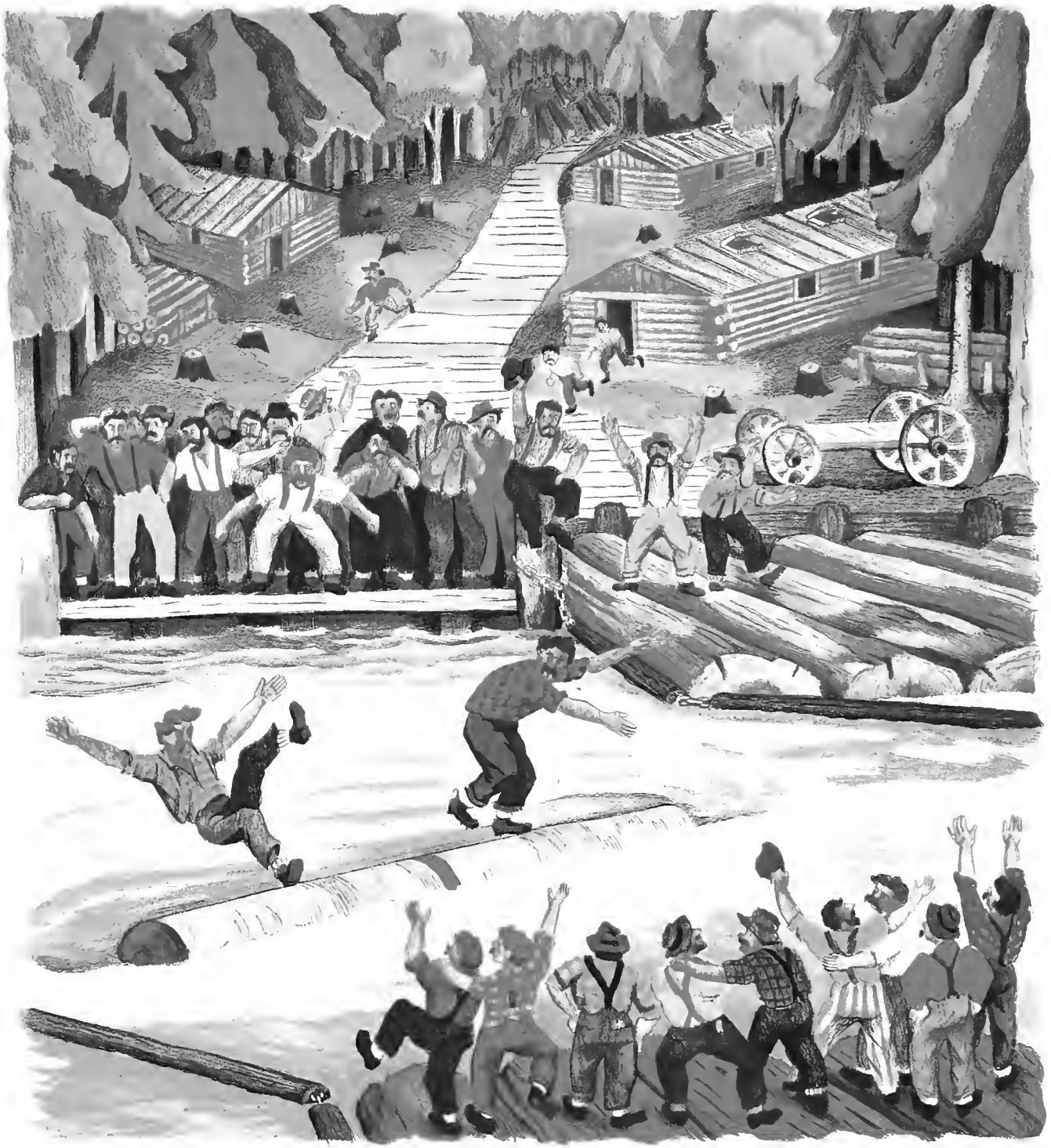
The Civil War brought hardship into the lives of the people of the United States and the hardness of iron and steel into their homes. Labor-saving tools were invented, because there were now fewer men to do the nation's work.



TIMBER

WHEN STEEL RAILS had to be bought from England, it had cost a great deal to build American railroads. But with steel produced by our own mines and furnaces miles and miles of track could be laid and engines and bridges constructed. New towns sprang up along the railroads. Those on the treeless western prairies were built of wood that grew in Michigan and Wisconsin. Lumberjacks from the logged-out pineries of Maine were swinging their axes in the finest forests of white pine the world has ever seen. Canadians too, with their red woolen sashes, swarmed into the woods with the Yankees every fall. They felled trees from gray dawn to twilight in the snow-filled forests and sledded them down to the frozen rivers.

When the snow turned to slush and the rivers rose, the crews floated the logs down to the sawmills and, in one big hilarious spree, spent the winter's wages in the lumber towns by the

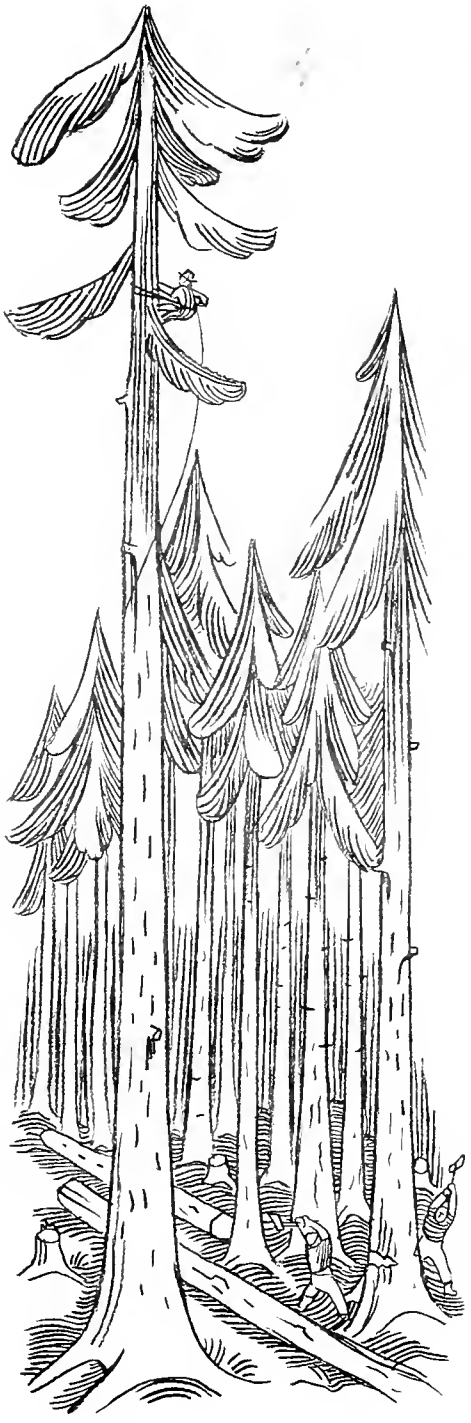


A CHAMPION BIRLER COULD FORCE THE MAN AT THE OTHER END TO DROP OFF

rivers. In Saginaw, up the river from Saginaw Bay, a clothing merchant kept a band playing in front of his store when the boys came to town. As soon as a big crowd had gathered, he would toss vests out of a high window, shouting that the man who caught a vest and brought it in could have a free coat and pair of pants. Each vest caused a glorious fight, and when the winner carried the rags that were left into the store, he had to buy a new vest to go with the free suit.

Next to fighting, log-birling was the main sport of the lumberjacks, learned on the river when the men ran across the logs, herding them downstream. A champion birler could keep his balance on one end of a floating log while forcing the man at the other end to drop off. At Ashland, Wisconsin, in 1901, Tom Oliver, Michigan's best, and Jim Stewart, Wisconsin's winner, competed for the championship of three States. They began at noon, tirelessly dancing, swaying on the spinning log until seven that September night. Stewart was the larger and stronger of the two, but the smaller man was very quick. That night 3,000 lumberjacks kept the town in an uproar, but the next morning they settled down at ten o'clock to watch Oliver and Stewart fighting it out on a log until noon, when everyone had dinner. As soon as the match started again they could see that Oliver was losing. Stewart, with sudden bursts of speed, would spin the log like a buzz saw and about half past four Oliver dropped into the water—not because he had lost his balance but because he was worn out. That brought Jim Stewart a gold medal naming him champion log-birler of Michigan, Wisconsin, and Minnesota.

These three Lake States once contained almost 200,000 square miles of forest, threaded with streams and rivers. No one ever thought there would be an end to the trees, but by 1900 the sun shone full on miles of stumplands, the United States began buying wood from Canada's vaster forests, and the lumberjacks headed for the pineries in the South and the Douglas firs of the Northwest. Around the Lakes men still cut hardwood—chiefly maple, birch, and oak—but other men are setting out millions of white pine seedlings, to grow a new forest where the old one was so ruthlessly destroyed.



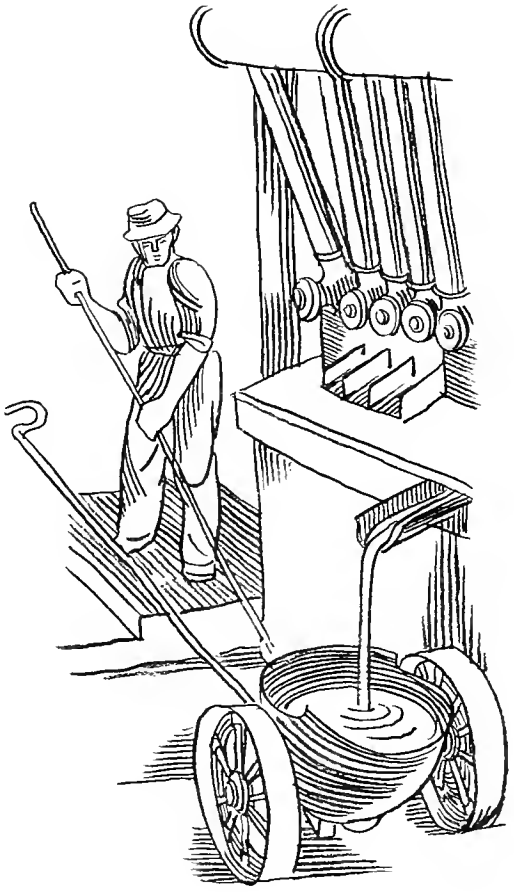
COPPER FROM THE CALUMET AND HECLA MINE IS STILL COMING DOWN THE LAKES

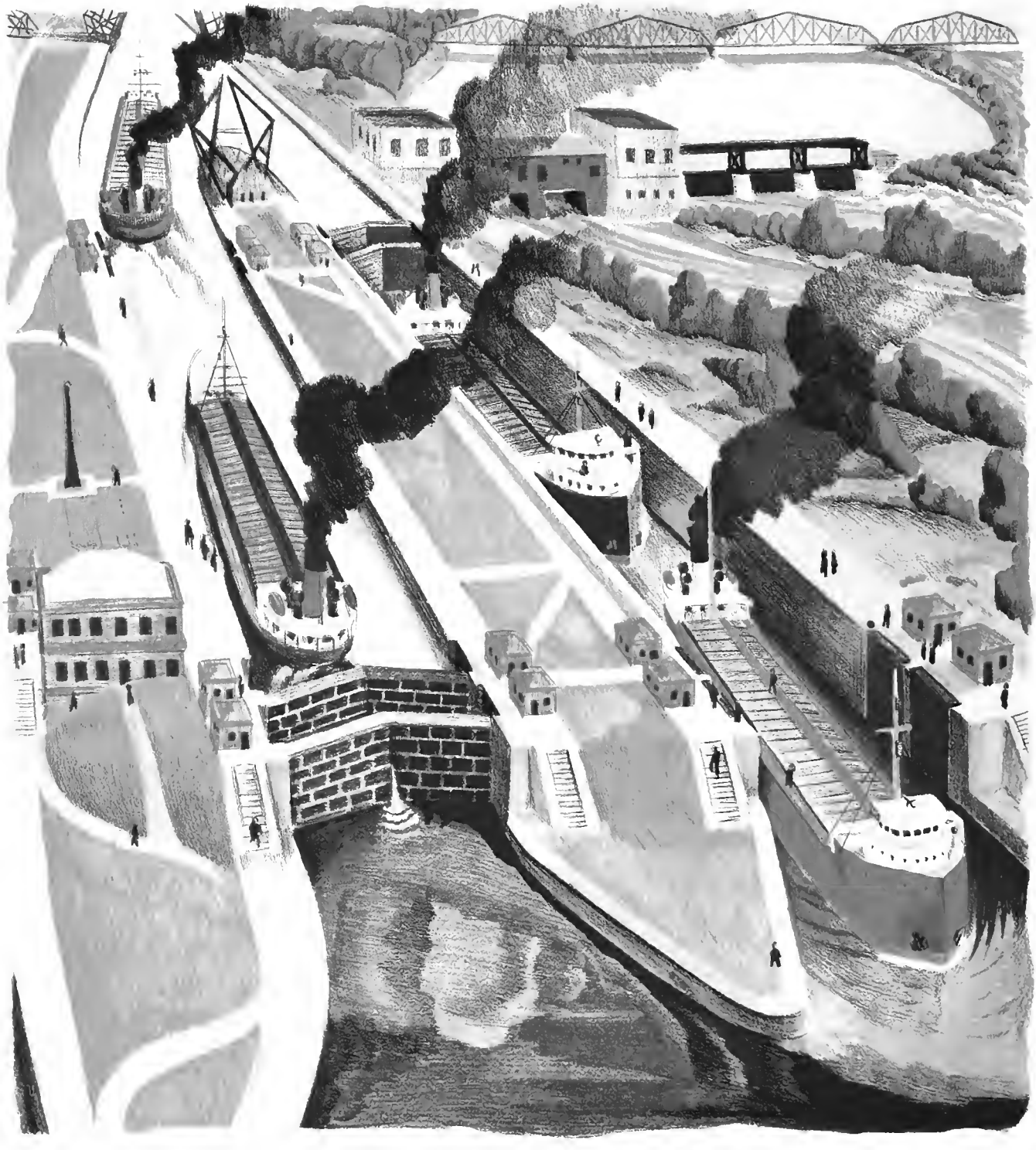
DIGGING RICHES OUT OF THE EARTH

SOME OF the early French maps of the Lake Superior country contain big mistakes, but few fail to show the Keweenaw Peninsula on the south shore of the Lake, or Isle Royale—the places where copper was found. Before the Soo Canal was dug, men were driving shafts into the rocky peninsula, mining for copper. The country's whole yield of copper came from there until the metal was discovered in Montana. It was hard work, with short summers and long harsh winters, yet the copper drew the men and held them, just as it once had drawn the earliest people of this continent. Near Lake Superior stone hammers have been found, and copper tools and great lumps of copper wrapped in deerskins and buried in the ground. There are ruins of mines, too, so old that two generations of forest trees have grown out of them. The mightiest vein of Lake Superior copper is the "Calumet and Hecla lode" on the copper peninsula, the deepest copper mine in the world.

One day before the Civil War, a road surveyor, Edwin Hulbert, came upon a big block of red copper-bearing rock in a hollow in the forest. Hulbert knew that if the rock had been dug out of the hollow he would find more like it right there. But if it had been carried there by some glacier he would never be able to find its source. For years he stole away in secret to poke around the rock and explore the ground near by. In the hollow he found a hoard of ancient copper and underneath the pit he came upon the real vein—the Calumet and Hecla lode.

Hulbert interested two Boston men in his discovery—one of them Alexander Agassiz, son of the great naturalist—and they formed a mining company. For seven years the miners drilled through rock. They went nearly a mile down, but there was no danger of a cave-in where the shafts were solid stone. Giant stamp mills above ground pounded the copper rock to fine powder. Other mills smelted it to a rosy liquid, lava hot, and poured it out in fire-colored ingots. Copper from the Calumet and Hecla Mine is still coming down the Lakes.



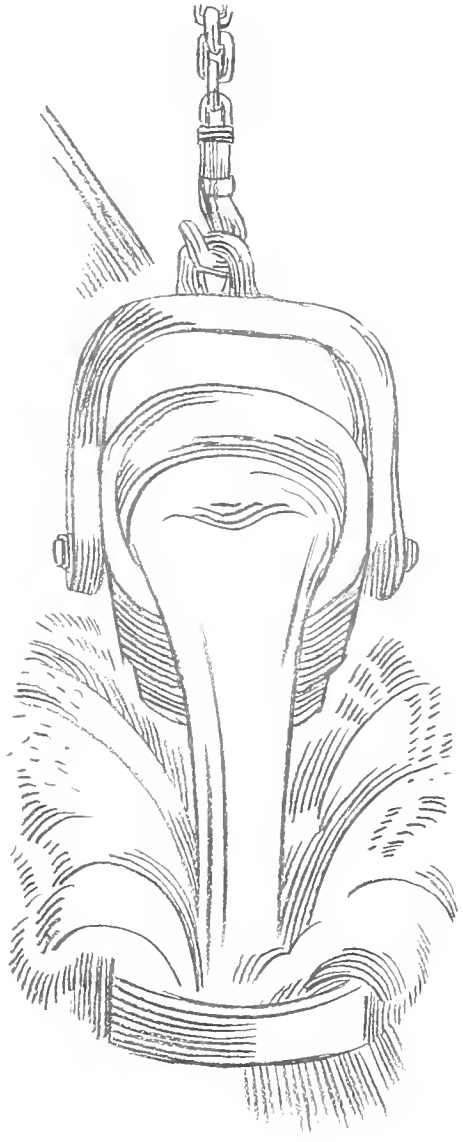


THE SOO CANAL IS ONE OF THE WORLD'S BUSIEST THOROUGHFARES

IRON

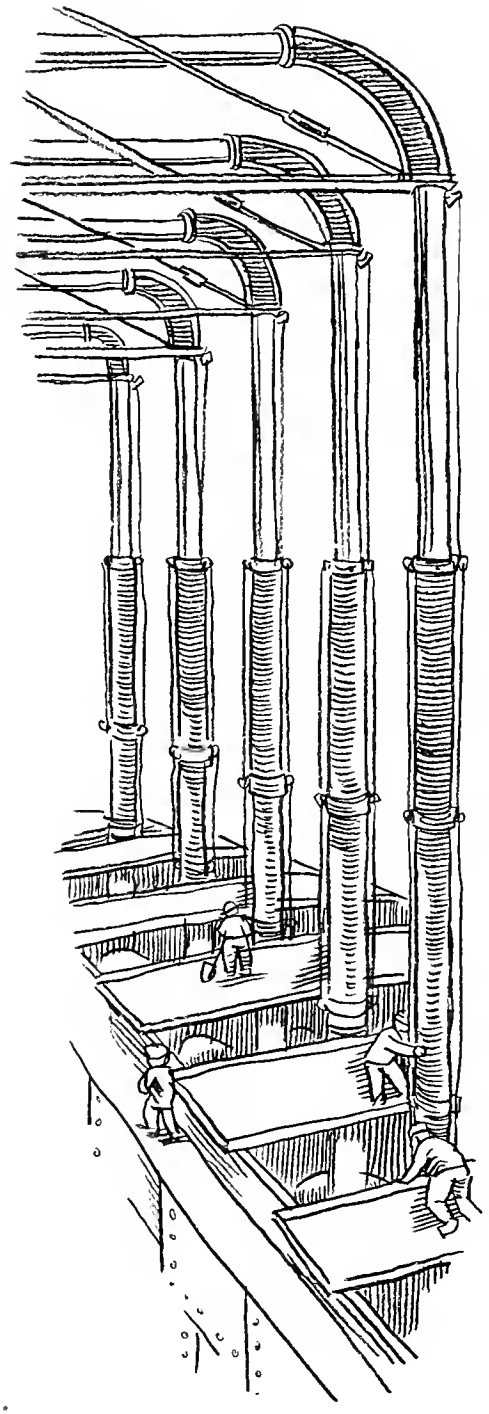
THE MARQUETTE iron range was discovered by surveyors who noticed that their compasses had gone wild and found the cause in iron earth under their feet. Every iron range—the Menominee, the Gogebic, Vermilion, and Cuyuna—has its own romantic history. The story of the greatest of them all—the Mesabi—is the story of one family, the Merritts. Seven timber-cruising Merritt brothers and nephews prospected year after year for ore in the hills beyond the rock bluffs of Duluth. As prospectors always did, they dug test pits deep in the earth, only to find that their wagon wheels were turning up red iron ore under a thin layer of pine needles. The vast wealth of Mesabi iron (the name is the Indian word for "giant") lies in shallow basins and can be scooped up under the blazing sun. This is known as open-pit mining. The only sight to match these mines in color and grandeur is the Grand Canyon of the Colorado in Arizona. The Merritts were better prospectors than businessmen. They borrowed too much money and lost their mines. It took ten years and a big piece of John D. Rockefeller's fortune before any profit came out of the Mesabi mines. Docks and railroads to ship the ore had to be built, and the Duluth-Superior harbor had to be developed to handle the shipping.

Rivalry between these two cities was once strong. In 1871, Duluth citizens decided to build a canal through one of the sandbars that cut off the big harbor from the open Lake so that their fishing boats could avoid the roundabout entry near Superior on the Wisconsin shore. Superior's citizens appealed to Washington to halt the digging, and on a Friday in April word came that an Army engineer was on his way to stop proceedings. Friday night, and Saturday and Sunday, every man in Duluth was out on the sandbar with his shovel. The engineer arrived Monday morning. He found an open canal, and steaming through it the little tug *Fero,* her whistle tied down in one long shriek of triumph. Duluth was allowed to keep her canal.



MEN AND MACHINES UNLOAD THE GRAIN SHIPS

RIVERS OF GRAIN



WHEN CHICAGO was a frontier town the farmers on the prairies used to drive in, sometimes a distance of 150 miles, with their first harvests of wheat laid carefully on sheets or blankets in their wagon boxes. At first the wheat was shipped down the Lakes in bags. Then, in 1839, it was spouted from a warehouse to the wharf and dumped in the open hold of the brig *Osceola*. Down it went to the Erie Canal, as it is carried today, in bulk. At Buffalo it took men with buckets from three days to a week to unload such a cargo. "Irishmen's backs make the best elevators," they used to say along the docks at Buffalo, but horsepower first, then steam, and finally electricity have relieved the backs of the stevedores.

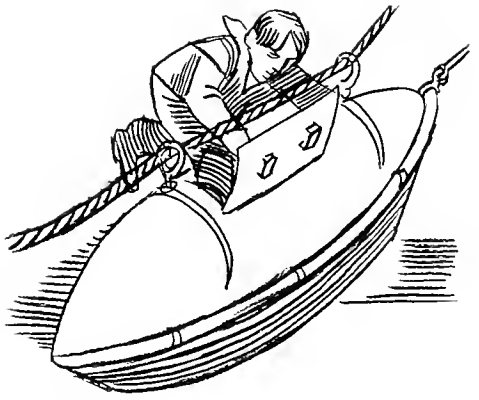
This small trickle of grain from Chicago soon became a mighty golden river. Milwaukee, too, soon became a great grain port, and the white-sailed grain fleet was one of the most beautiful sights on the Lakes. Sometimes as many as 200 vessels would gather in two or three days at the head of Lake Erie when a stiff northerly wind held them back. Then, with a favoring breeze, up sails and away! Like hovering gulls they would crowd the Detroit River in a line reaching for miles, so close that they took the wind from one another's sails.

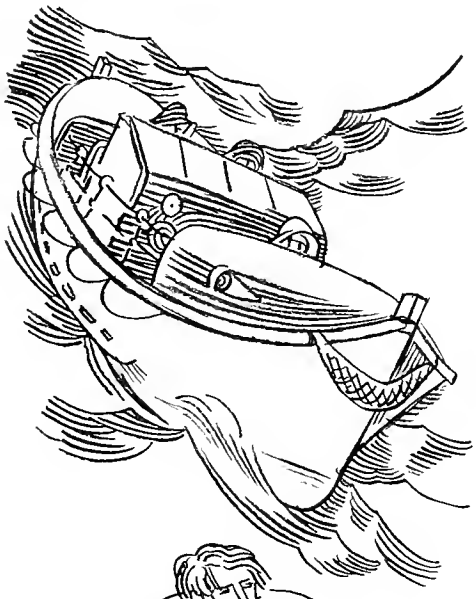
Now the grain harvested in the West and in Canada is carried in the hulls of big screw-propelled freighters. These ships have their engines and galley at the stern, their living quarters and pilothouse way up front, and all the deckspace between crowded with hatches. The ports which spout most of the grain from their bird-haunted elevators into the holds of freighters are the joint port of Superior and Duluth, and in Canada the twin ports, Fort William and Port Arthur. The American ports ship the harvest of Minnesota, Wisconsin, Iowa, Illinois, North Dakota, and Montana; the Canadian ports receive the grain grown on the plains of Alberta, Manitoba, and Saskatchewan.

THE COAST GUARD RESCUES A STORM BATTERED CREW

STORM

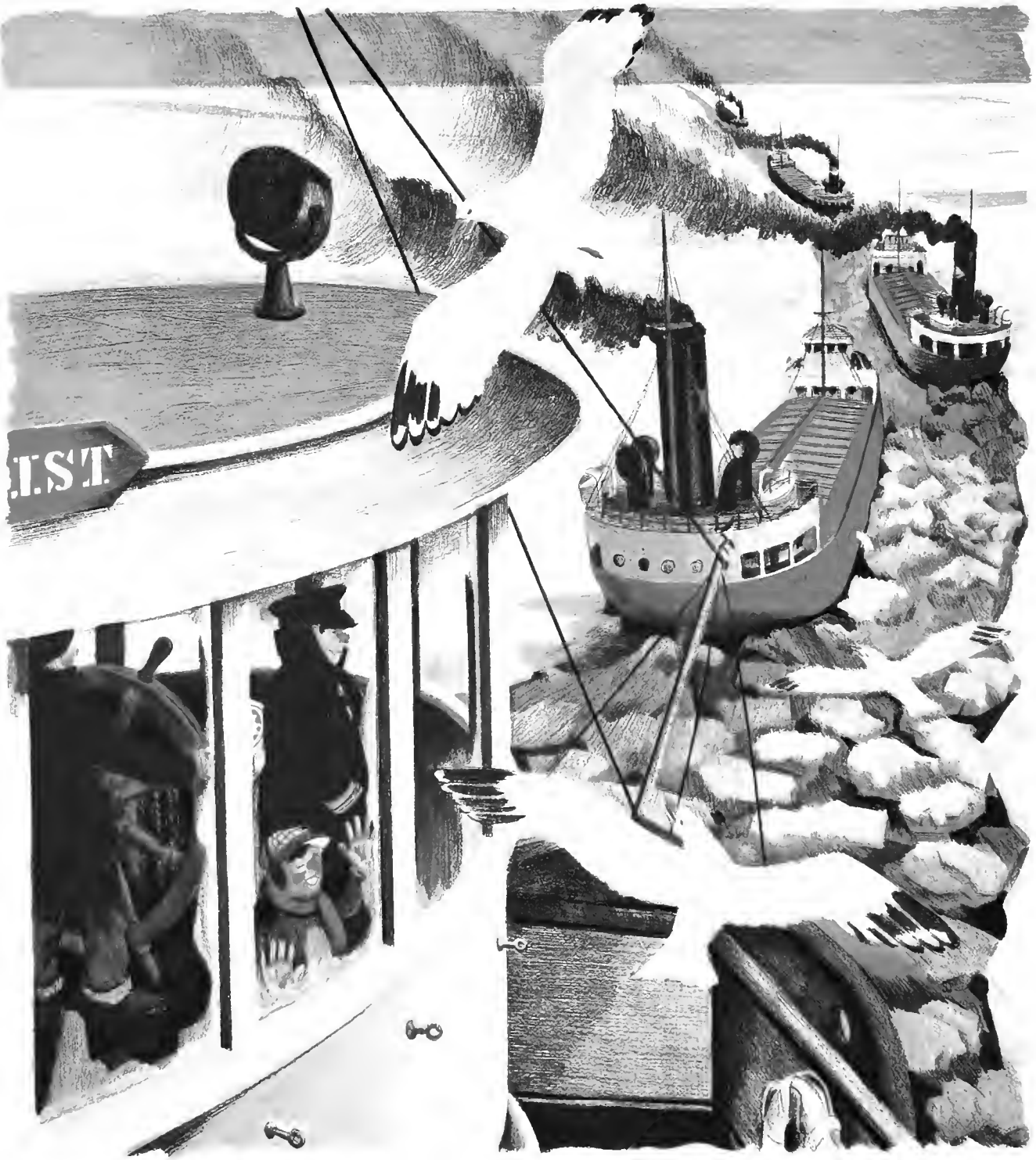
EVERY FALL, storms sweeping out of the northwest and northeast overtake steamers bringing down just one more load before tying up for the winter. On the ocean a ship in a storm can drift safely for hundreds of miles, but on the Lakes the coast is a constant menace. Many men lost their lives before the Government was convinced of the need for safer harbors, more lighthouses, and deeper, wider channels. Waves can still crumple a pilothouse and disable a rudder or propeller, pile vessels on a breakwater and, on the bottom, build up reefs that change a safe channel to a deathtrap. In the old days a steamer stormbound on Lake Superior would not be heard from for days. But now, radio beacons and direction-finders can keep her constantly on a safe course. Ship-to-shore telephones make instant communication possible. And Government Coast Guard stations are equipped to rescue crews in a storm.





TOUR OF THE LAKES

SUPPOSE YOU go down to the three miles of ore docks in the Duluth-Superior harbor toward the end of April and board a 700-foot freighter. There's plenty of loose ice in the water, but word has come that the lower Lakes are open and the fleet is ready to go. With a chorus of whistles the procession starts, some vessels loaded with grain that has been stored in their holds all winter, others packed solid with ore. At the Soo you meet up-bound freighters which left Cleveland two days ago with cargoes of coal, and others riding high with no cargo, going "light" to fetch ore and grain. You will no longer see the full volume of the falls, for much of its force now makes electricity for Canada, nor will the citizens come running from fields and shops to turn the windlasses of the locks. In 1881 the Weitzel Lock, 515 feet long, was built. Then the old "State Locks" gave way to the Poe Lock, 800 feet long. In 1895 Canada built a 900-foot lock. The two newest American locks, the Davis and Sabin,



THE LAKES ARE OPEN—THE FLEET IS READY TO GO

are each 1350 feet long—the largest locks in the world. They are used by northbound vessels, while ships going south pass through the Poe and Weitzel Locks. And American and Canadian ships use the canals of both countries.

You hear very little about the ship canal at the Sault Sainte Marie, but it is actually a much busier gateway than either the Suez or the Panama Canal. And there are only seven to eight months of open water for handling this vast commerce. Iron ore and coal, wheat, flax, and other grains, flour, salt, copper, wood, stone, and merchandise keep a fleet of perhaps 450 steel bulk freight carriers shuttling up and down the Lakes until they shove their way into port in December, ice-shrouded.

But now the smooth walls of the lock basin rise high above your head as the water runs out, letting you down to Lake Huron's level. You may be going to Buffalo, where Hulett unloaders will grab ore out of your vessel's hold in 17-ton bites. But most of the ore goes to Cleveland and near-by ports, where it is consumed by the steel mills, or proceeds by rail to Pittsburgh and Youngstown and Canton, and smaller cities of the Mahoning valley.

Human ambitions and the fur trade founded the cities bordering on the Great Lakes. But it is upon the iron ranges and the grainfields of the Northwest that they have fed and become great. Duluth is a comparatively small city, a funnel through which these resources flow. But Chicago, second largest city in the United States, is the capital of the Middle West, junction of Lakes and rail and Mississippi River traffic (this last by way of the Illinois Canal). It packs our meat, makes our farm implements, markets our grain. Its steel furnaces have the largest capacity of any in the country. Gary, Indiana, on the shore of Lake Michigan, is a big steel town. Milwaukee's steam shovels dug the Panama Canal, and her turbines harnessed Niagara Falls. Detroit makes more than half of all the world's automobiles in peace time, and tanks and planes in war. Cleveland manufactures machine tools and ships, automobile parts, paints, and varnishes. And, when necessary, her shipyards build mine sweepers and fighting craft.

Perhaps your freighter goes light to Toledo, where tall machinery picks up a coal car and turns it upside down, pouring

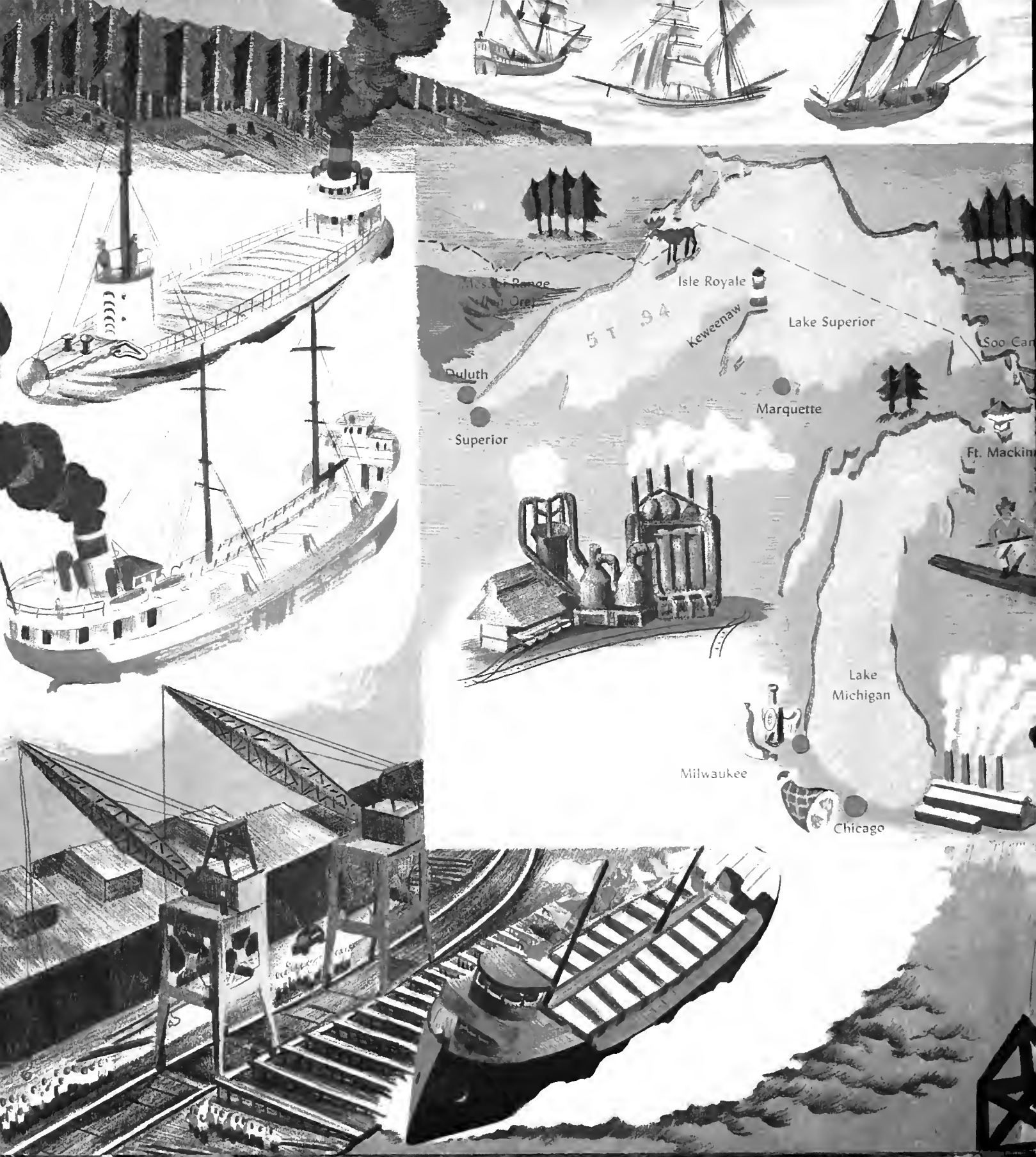
its contents down a chute into your vessel. You may then head for Georgian Bay and finally dock at a jumping-off place where the Canadian Pacific stores coal. Then, a short trip across Lake Huron to Calcite for limestone needed by the Lake Erie furnaces: then coal again, this time for Milwaukee. Then, light, through the Soo Canal to Marquette on the south shore of Lake Superior, for iron ore.

Countless people cherish a memory of a childhood vacation along some Lake shore or in the North Woods. Many bring their children back for the same joys—the sand dunes, the swimming, yachting, canoeing, fishing, and camping. Michigan has shores on three Lakes; Lake Superior is cold for bathing, but the lower Lakes are fringed with swimmers and beach parties the summer long. Excursion and cruise steamers carry thousands of passengers up and down the Lakes and into Georgian Bay.

These large bodies of water, tempering the climate, make prosperous Michigan's beautiful fruit orchards and vegetable farms, Ohio's and New York's vineyards, Indiana's fragrant mint fields.

Here two countries share a great waterway without strife; here the worst enemy is bad weather. And after every storm the sun shines brilliantly, and the tang of wet leaves and resinous pine is heaven to breathe.

Here men live and work together in peace.


Isle Royale
Keweenaw
Lake Superior
Duluth
Superior
Marquette
Lake
Michigan
Milwaukee
Chicago

French Fur Traders
Ottawa River
French River Route
Georgian Bay
Lake Huron
Toronto
Lake Ontario
Niagara Falls
Port Huron
Lake
St. Clair
Lake Erie
Erie
Detroit
Cleveland